



## Memorandum

**Re: Proposed Approach to Accounting for COVID-19 Impacts on Energy Efficiency Potential**

**Date: July 8, 2020**

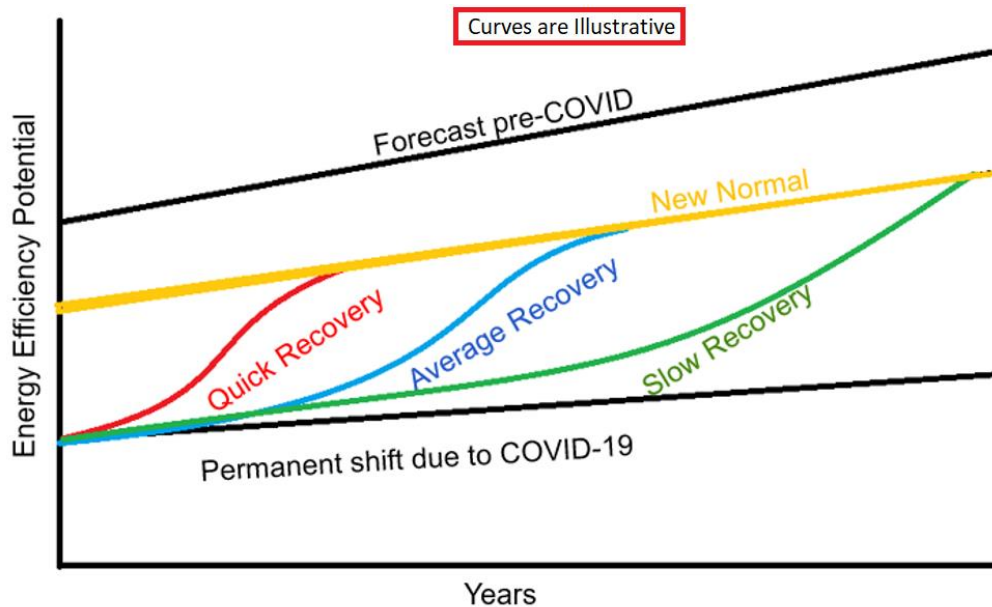
### **Background:**

COVID-19 is impacting energy use and the opportunities for energy efficiency in many ways. It has impacted nearly every decision consumers and business make. Energy consumption and peak demand loads are shifting from commercial to residential customers. Most spending and investment is down in almost all sectors. These changes and the uncertainty of what the future holds has significant potential impacts on the accuracy of the results generated as part of the energy efficiency potential and goals (PG) study. This memo is a proposed approach regarding what can we expect to capture in the PG modeling effort that is *reasonably accurate*, and how we suggest capturing the impacts of COVID-19 on measure characterization, the baseline IEPR forecast, adoption logic, and calibration.

While there may be significant uncertainty in what EE programs can accomplish in 2020 and 2021 due to COVID-19; it is important to remind policy makers and stakeholders that the 2021 PG study is tasked with forecasting energy efficiency potential to inform IOU goals in the years 2022 through 2032. The PG study is not currently scoped with recasting the EE potential for 2020 or 2021.

### **Recommendations:**

Today there is insufficient information to predict if/when the state will recover from COVID-19 and what the state will look like after recovery. In addition, there is enough volatility in the economy for us to believe the economy may not settle into a predictable trajectory in the near term. For this reason, we suggest placing bounds around the economic recovery trajectory in a manner that gives us reasonable confidence that the actual recovery will fall within these bounds. The two bounds we suggest are 1) a “permanent shift” accounting for COVID-19 impacts; and 2) an unadjusted forecast that assumes COVID-19 has no impact. Both bounds are purposely extreme. Once these bounds are set, we can develop and refine assumptions about when and how quickly the market for energy efficiency will recover and if it will recover to pre-COVID-19 levels or to a “new normal”. The two bounds (black lines) and various paths regarding the changing landscape of consumption, savings, and adoption behavior are illustrated with the figure below:



While the figure illustrates a variety of notional recovery trajectories, we recommend settling on one set of assumptions regarding the impacts of COVID-19 for the purposes of the final deliverable. This one set of assumptions will then permeate across all the PG study scenarios. This means scenarios will continue to be an exercise in quantifying the impact of various EE policies and interventions rather than uncontrollable factors. If there is a desire to model multiple COVID-19 recovery trajectories, we recommend rerunning each of the EE policy scenarios for each additional recovery trajectory such that all EE policies and intervention scenarios are captured with respect to each COVID-19 recovery trajectory. For example, if it is desired to model four policy and program intervention scenarios and three COVID-19 recovery trajectories, this would result in 12 unique sets of results. The table below further illustrates this matrix of scenarios. If one recovery trajectory is selected, then only that vertical slice of the table is run through the model.

		COVID- 19 Recovery Trajectories		
		R1	R2	R3
EE Policy Assumption Sets	P1	Scenario 1	Scenario 5	Scenario 9
	P2	Scenario 2	Scenario 6	Scenario 10
	P3	Scenario 3	Scenario 7	Scenario 11
	P4	Scenario 4	Scenario 8	Scenario 12

We further recommend waiting until Q1 2021 to settle on the final set of assumptions about the impacts of COVID-19 on the EE forecast, be it a single recovery trajectory or multiple. Despite this, work has already started to collect the necessary information and data to inform this future decision. The following sections provide more detail regarding how COVID-19 will be addressed with respect to key inputs and key modeling parameters.

#### Measure characterization

The response to COVID-19 requiring many to work and care for children at home has led to shifts in consumption from commercial to residential customer segments. With respect to individual measures, this change has impacted how much energy they consume in the near term and thus the potential first year savings associated with adopting efficient measures. While aggregate sector energy use is shown to have changed, there currently isn't enough data to show how specific measures have been impacted to merit updating their characterization. Even if this granular data were to be available, a second set of assumptions related to the persistence of this change over the EUL of the measure would be needed.

As an additional complicating factor, updating the characterization of measures for this study would necessitate deviating from DEER and CPUC approved workpapers which would introduce a misalignment

with the PAs data source for their own program planning and analysis. For these reasons, we suggest NOT making any changes at the measure level to account for COVID-19 impact. If changes were to be entertained, it would require broader policy decisions from the CPUC.

### **Baseline IEPR Forecast**

As previously mentioned, COVID-19 changed where energy is being consumed and how much of it is being consumed. Some sectors and segments may see increase in energy use (residential) others may see a decrease in energy use (offices) and other may yet even a decrease in the number active utility customer accounts (restaurants). The baseline IEPR forecast is the PG study's source for the forecast of building stock at the sector/segment level as well as energy consumption. The COVID-19 forecast would be an adjusted forecast either provided from the CEC or Guidehouse adjustments. Guidehouse and CPUC will coordinate with the CEC to use the most up to date available baseline consumption forecast. If any forecast adjustments are made either using the CEC revisions or a Guidehouse established adjustment,<sup>1</sup> then the PG study team will coordinate to ensure subsequent analysis such as the additional achievable energy efficiency (AAEE) estimates align with the CEC forecasting analysis approach.

Regardless of the approach the baseline forecast will need to be put in context with the two bounds we are attempting to frame our forecast.

### **Adoption logic**

To improve the adoption logic over the previous PG study, a market survey is currently under way to capture the decision-making habits of customers in the IOUs' service territories. Since this survey was being developed at the same time COVID-19 started impacting the world, steps have already been taken to account for how COVID-19 may be influencing the decision making of potential adopters.

We are asking questions in the market study that approach how people/businesses have been financially/operationally impacted by COVID-19 and their expectations about their individual recovery timelines. We are also asking questions attempting to get the respondents thoughts on how they behaved in the market prior to COVID-19, so we have a target to which we can project their changing willingness to adopt over time. Mapping this logic back to the earlier figure:

- Responses about current decision-making habits will be rooted in the COVID-19 paradigm and can be used to reflect the "permanent shift" bound of the forecast.
- Responses about past decision-making habits and purchase behavior will inform the Pre-COVID-19 bound of the forecast.
- Response about expectations about their individual recovery timelines can help inform the trajectory of the forecast within the two bounds. This can also be coupled with broader assumptions we eventually make about the economic recovery to inform the year at which customers will resume their "normal" purchasing habits.

### **Calibration**

With respect to calibrating impacts based on COVID-19 specifically, we propose postponing this exercise until Q1 of 2021. At this time, we will have approximately a year's worth of data regarding economic recovery and hopefully a clearer timeline to the deployment (or lack thereof) of a vaccine, which will likely yield a more precise near-term forecast. Typical data sources may include government economic forecasts, forecasts published by other firms, utilities, and universities, and other countries observed recovery if ahead of the United States.

This information will be used to calibrate savings such that the transition from the "permanent shift" forecast towards the "new normal" is in alignment with the observed historic and forecasted economic recovery rates. If modeling more than one COVID-19 recovery trajectory, this process would be repeated for each recovery trajectory.

The pandemic will require rethinking calibration where using historical data does not make sense. However, support from the program administrators regarding their existing adjustments to current programs and forecasted adjustments based on their analysis may provide additional input to support calibration.

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<sup>1</sup> One approach is to use the EIA adjustments such as those provided in July 2020, [https://www.eia.gov/outlooks/steo/pdf/steo\\_text.pdf](https://www.eia.gov/outlooks/steo/pdf/steo_text.pdf).